IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	
Duan *et al.*	Art Unit: *To be assigned*
Appl. No. *To be assigned* (Divisional of U.S. Appl. No. 09/362,871; Filed: July 29, 1999)	Examiner: *To be assigned*
Filed: *Herewith*	Atty. Docket: 1488.0880003/EKS/PSC/TAC
For: **Antibodies Directed to ELL2, a New Member of an ELL Family of RNA Polymerase II Elongation Factors (As amended herein)**	

Preliminary Amendment

Commissioner for Patents
Washington, D.C. 20231

Sir:

It is respectfully requested that the following amendments to the specification and the claims be entered in advance of substantive examination. This Amendment is provided in the following format:

(A) A clean version of each replacement paragraph/section/claim along with clear instructions for entry;

(B) Starting on a separate page, appropriate remarks and arguments. 37 C.F.R. § 1.115; and

(C) Starting on a separate page, a marked-up version entitled: "Version with markings to show changes made."

It is not believed that extensions of time or fees for net addition of claims are required beyond those that may otherwise be provided for in documents accompanying this paper. However, if additional extensions of time are necessary to prevent abandonment of this

application, then such extensions of time are hereby petitioned under 37 C.F.R. § 1.136(a), and any fees required therefor (including fees for net addition of claims) are hereby authorized to be charged to our Deposit Account No. 19-0036.

Amendments

In the Title:

Please substitute the pending Title of the Invention with the following Title of the Invention:

Antibodies Directed to ELL2, a New Member of an ELL Family of RNA Polymerase II Elongation Factors.

In the Specification:

Please delete the text on page 1, lines 3-5, and replace it with the following text:

Cross-Reference to Related Applications

The present application is a divisional of U.S. Application No. 09/362,871, filed July 29, 1999 (allowed), which is a divisional of U.S. Application No. 09/026,343, filed February 19, 1998 (now U.S. Pat. No. 6,008,018), said 09/026,343 claims the benefit of U.S. Provisional Application No. 60/038,447, filed February 19, 1997. All of said applications are herein incorporated by reference.

In the Claims:

Please cancel claims 1-23 without prejudice or disclaimer.

Please add the following claims:

24. (New) An isolated antibody or fragment thereof that specifically binds to a protein selected from the group consisting of:

(a) a protein consisting of amino acid residues 1 to 388 of SEQ ID NO:2;

(b) a protein consisting of amino acid residues 1 to 498 of SEQ ID NO:2;

(c) a protein consisting of amino acid residues 51 to 640 of SEQ ID NO:2;

(d) a protein consisting of amino acid residues 11 to 640 of SEQ ID NO:2;

(e) a protein consisting of amino acid residues 1 to 640 of SEQ ID NO:2;

(f) a protein consisting of a portion of SEQ ID NO:2, wherein said portion comprises at least 30 contiguous amino acid residues of SEQ ID NO:2; and

(g) a protein consisting of a portion of SEQ ID NO:2, wherein said portion comprises at least 50 contiguous amino acid residues of SEQ ID NO:2.

25. (New) The antibody or fragment thereof of claim 24 that specifically binds protein (a).

26. (New) The antibody or fragment thereof of claim 24 that specifically binds protein (b).

27. (New) The antibody or fragment thereof of claim 24 that specifically binds

protein (c).

28. (New) The antibody or fragment thereof of claim 24 that specifically binds protein (d).

29. (New) The antibody or fragment thereof of claim 24 that specifically binds protein (e).

30. (New) The antibody or fragment thereof of claim 24 that specifically binds protein (f).

31. (New) The antibody or fragment thereof of claim 24 that specifically binds protein (g).

32. (New) The antibody or fragment thereof of claim 25 that specifically binds protein (e).

33. (New) The antibody or fragment thereof of claim 25 wherein said protein bound by said antibody or fragment thereof is glycosylated.

34. (New) The antibody or fragment thereof of claim 25 which is a human antibody.

35. (New) The antibody or fragment thereof of claim 25 which is a polyclonal antibody.

36. (New) The antibody or fragment thereof of claim 25 which is selected from the

group consisting of:

(a) a chimeric antibody;

(b) a humanized antibody;

(c) a single chain antibody; and

(d) a Fab fragment.

37. (New) The antibody or fragment thereof of claim 25 wherein said antibody or fragment thereof specifically binds to said protein in a Western blot.

38. (New) The antibody or fragment thereof of claim 25 wherein said antibody or fragment thereof specifically binds to said protein in an ELISA.

39. (New) An isolated cell that produces the antibody or fragment thereof of claim 25.

40. (New) A hybridoma that produces the antibody or fragment thereof of claim 25.

41. (New) A method of detecting ELL2 protein in a biological sample comprising:

(a) contacting the biological sample with the antibody or fragment thereof of claim 25; and

(b) detecting the ELL2 protein in the biological sample.

42. (New) The method of claim 41 wherein the antibody or fragment thereof is a polyclonal antibody.

43. (New) An isolated antibody or fragment thereof obtained from an animal that has been immunized with a protein selected from the group consisting of:

(a) a protein consisting of amino acid residues 1 to 388 of SEQ ID NO:2;

(b) a protein consisting of amino acid residues 1 to 498 of SEQ ID NO:2;

(c) a protein consisting of amino acid residues 51 to 640 of SEQ ID NO:2;

(d) a protein consisting of amino acid residues 11 to 640 of SEQ ID NO:2;

(e) a protein consisting of amino acid residues 1 to 640 of SEQ ID NO:2;

(f) a protein consisting of a portion of SEQ ID NO:2, wherein said portion comprises at least 30 contiguous amino acid residues of SEQ ID NO:2; and

(g) a protein consisting of a portion of SEQ ID NO:2, wherein said portion comprises at least 50 contiguous amino acid residues of SEQ ID NO:2;

wherein said antibody or fragment thereof specifically binds to said amino acid sequence.

44. (New) The antibody or fragment thereof of claim 43 obtained from an animal immunized with protein (a).

45. (New) The antibody or fragment thereof of claim 43 obtained from an animal immunized with protein (b).

46. (New) The antibody or fragment thereof of claim 43 obtained from an animal immunized with protein (c).

47. (New) The antibody or fragment thereof of claim 43 obtained from an animal immunized with protein (d).

48. (New) The antibody or fragment thereof of claim 43 obtained from an animal immunized with protein (e).

49. (New) The antibody or fragment thereof of claim 43 obtained from an animal immunized with protein (f).

50. (New) The antibody or fragment thereof of claim 43 obtained from an animal immunized with protein (g).

51. (New) The antibody or fragment thereof of claim 43 which is a monoclonal antibody.

52. (New) The antibody or fragment thereof of claim 43 which is selected from the group consisting of:

(a) a chimeric antibody;

(b) a polyclonal antibody;

(c) a humanized antibody;

(d) a single chain antibody; and

(e) a Fab fragment.

53. (New) An isolated monoclonal antibody or fragment thereof that specifically binds to a protein selected from the group consisting of:

(a) a protein consisting of amino acid residues 1 to 388 of SEQ ID NO:2;

(b) a protein consisting of amino acid residues 1 to 498 of SEQ ID NO:2;

(c) a protein consisting of amino acid residues 51 to 640 of SEQ ID NO:2;

(d) a protein consisting of amino acid residues 11 to 640 of SEQ ID NO:2;

(e) a protein consisting of amino acid residues 1 to 640 of SEQ ID NO:2;

(f) a protein consisting of a portion of SEQ ID NO:2, wherein said portion comprises at least 30 contiguous amino acid residues of SEQ ID NO:2; and

(g) a protein consisting of a portion of SEQ ID NO:2, wherein said portion comprises at least 50 contiguous amino acid residues of SEQ ID NO:2.

54. (New) The antibody or fragment thereof of claim 53 that specifically binds protein (a).

55. (New) The antibody or fragment thereof of claim 53 that specifically binds protein (b).

56. (New) The antibody or fragment thereof of claim 53 that specifically binds protein (c).

57. (New) The antibody or fragment thereof of claim 53 that specifically binds protein (d).

58. (New) The antibody or fragment thereof of claim 53 that specifically binds protein (e).

59. (New) The antibody or fragment thereof of claim 53 that specifically binds protein (f).

60. (New) The antibody or fragment thereof of claim 53 that specifically binds protein (g).

61. (New) The antibody or fragment thereof of claim 54 that specifically binds protein (e).

62. (New) The antibody or fragment thereof of claim 54 wherein said protein bound by said antibody or fragment thereof is glycosylated.

63. (New) The antibody or fragment thereof of claim 54 which is a human antibody.

64. (New) The antibody or fragment thereof of claim 54 which is selected from the group consisting of:

(a) a chimeric antibody;

(b) a humanized antibody;

(c) a single chain antibody; and

(d) a Fab fragment.

65. (New) The antibody or fragment thereof of claim 54 wherein said antibody or fragment thereof specifically binds to said protein in a Western blot.

66. (New) The antibody or fragment thereof of claim 54 wherein said antibody or fragment thereof specifically binds to said protein in an ELISA.

67. (New) An isolated cell that produces the antibody or fragment thereof of claim

54.

68. (New) A hybridoma that produces the antibody or fragment thereof of claim 54.

69. (New) A method of detecting ELL2 protein in a biological sample comprising:

(a) contacting the biological sample with the antibody or fragment thereof of claim 54; and

(b) detecting the ELL2 protein in the biological sample.

70. (New) An isolated antibody or fragment thereof that specifically binds to a protein selected from the group consisting of:

(a) a protein consisting of the full-length polypeptide encoded by the cDNA contained in ATCC Deposit Number 97863;

(b) a protein consisting of a portion of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97863, wherein said portion comprises at least 30 contiguous amino acid residues of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97863; and

(c) a protein consisting of a portion of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97863, wherein said portion comprises at least 50 contiguous amino acid residues of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97863.

71. (New) The antibody or fragment thereof of claim 70 that specifically binds protein (a).

72. (New) The antibody or fragment thereof of claim 70 that specifically binds protein (b).

73. (New) The antibody or fragment thereof of claim 70 that specifically binds protein (c).

74. (New) The antibody or fragment thereof of claim 71 that specifically binds protein (b).

75. (New) The antibody or fragment thereof of claim 71 wherein said protein bound by said antibody or fragment thereof is glycosylated.

76. (New) The antibody or fragment thereof of claim 71 which is a human antibody.

77. (New) The antibody or fragment thereof of claim 71 which is a polyclonal antibody.

78. (New) The antibody or fragment thereof of claim 71 which is selected from the group consisting of:

(a) a chimeric antibody;

(b) a humanized antibody;

(c) a single chain antibody; and

(d) a Fab fragment.

79. (New) The antibody or fragment thereof of claim 71 wherein said antibody or fragment thereof specifically binds to said protein in a Western blot.

80. (New) The antibody or fragment thereof of claim 71 wherein said antibody or fragment thereof specifically binds to said protein in an ELISA.

81. (New) An isolated cell that produces the antibody or fragment thereof of claim 71.

82. (New) A hybridoma that produces the antibody or fragment thereof of claim 71.

83. (New) A method of detecting ELL2 protein in a biological sample comprising:

(a) contacting the biological sample with the antibody or fragment thereof of claim 71; and

(b) detecting the ELL2 protein in the biological sample.

84. (New) The method of claim 83 wherein the antibody or fragment thereof is a polyclonal antibody.

85. (New) An isolated antibody or fragment thereof obtained from an animal that has been immunized with a protein selected from the group consisting of:

(a) a protein consisting of the full-length polypeptide encoded by the cDNA contained in ATCC Deposit Number 97863;

(b) a protein consisting of a portion of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97863, wherein said portion comprises at least 30 contiguous amino acid residues of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97863; and

(c) a protein consisting of a portion of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97863, wherein said portion comprises at least 50 contiguous amino acid residues of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97863;

wherein said antibody or fragment thereof specifically binds to said amino acid sequence.

86. (New) The antibody or fragment thereof of claim 85 obtained from an animal immunized with protein (a).

87. (New) The antibody or fragment thereof of claim 85 obtained from an animal immunized with protein (b).

88. (New) The antibody or fragment thereof of claim 85 obtained from an animal immunized with protein (c).

89. (New) The antibody or fragment thereof of claim 85 which is a monoclonal antibody.

90. (New) The antibody or fragment thereof of claim 85 which is selected from the group consisting of:

(a) a chimeric antibody;

(b) a polyclonal antibody;

(c) a humanized antibody;

(d) a single chain antibody; and

(e) a Fab fragment.

91. (New) An isolated monoclonal antibody or fragment thereof that specifically binds to a protein selected from the group consisting of:

(a) a protein consisting of the full-length polypeptide encoded by the cDNA contained in ATCC Deposit Number 97863;

(b) a protein consisting of a portion of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97863, wherein said portion comprises at least 30 contiguous amino acid residues of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97863; and

(c) a protein consisting of a portion of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97863, wherein said portion comprises at least 50 contiguous amino acid residues of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97863.

92. (New) The antibody or fragment thereof of claim 91 that specifically binds protein (a).

93. (New) The antibody or fragment thereof of claim 91 that specifically binds protein (b).

94. (New) The antibody or fragment thereof of claim 91 that specifically binds protein (c).

95. (New) The antibody or fragment thereof of claim 92 that specifically binds protein (b).

96. (New) The antibody or fragment thereof of claim 92 wherein said protein bound by said antibody or fragment thereof is glycosylated.

97. (New) The antibody or fragment thereof of claim 92 which is a human antibody.

98. (New) The antibody or fragment thereof of claim 92 which is selected from the group consisting of:

(a) a chimeric antibody;

(b) a humanized antibody;

(c) a single chain antibody; and

(d) a Fab fragment.

99. (New) The antibody or fragment thereof of claim 92 wherein said antibody or fragment thereof specifically binds to said protein in a Western blot.

100. (New) The antibody or fragment thereof of claim 92 wherein said antibody or fragment thereof specifically binds to said protein in an ELISA.

101. (New) An isolated cell that produces the antibody or fragment thereof of claim

92.

102. (New) A hybridoma that produces the antibody or fragment thereof of claim 92.

103. (New) A method of detecting ELL2 protein in a biological sample comprising:

(a) contacting the biological sample with the antibody or fragment thereof of claim 92; and

(b) detecting the ELL2 protein in the biological sample.

Remarks

Upon entry of the foregoing amendment, claims 24-103 are pending in the application with claims 24, 43, 53, 70, 85 and 91 being the independent claims. Claims 1-23 are sought to be canceled without prejudice to or disclaimer of the subject matter therein. Applicants reserve the right to pursue the subject matter of claims 1-23 in continuing applications. New claims 24-103 are sought to be added. Support for claims 24-103 can be found throughout the specification and the original claims.

Applicants have also amended the application to contain a specific reference to priority applications and to amend the title of the application. These changes are believed to introduce no new matter, and their entry is respectfully requested.

It is respectfully believed that this application is now in condition for substantive examination. Early notice to this effect is respectfully requested.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

Elizabeth J. Haanes
Reg. #42,613

For Eric K. Steffe
Attorney for Applicants
Registration No. 36,688

Date: December 28, 2001

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Suite 600
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Version with markings to show changes made

In the Title:

The Title has been amended as follows:

Antibodies Directed to ELL2, a New Member of an ELL Family of RNA Polymerase II Elongation Factors

In the Specification:

The text on page 1, lines 3-5, has been deleted and replaced with the following text:

Cross-Reference to Related Applications

The present application is a divisional of U.S. Application No. 09/362,871, filed July 29, 1999 (allowed), which is a divisional of U.S. Application No. 09/026,343, filed February 19, 1998 (now U.S. Patent No. 6,008,018), said 09/026,343 claims the benefit of U.S. Provisional Application No. 60/038,447, filed February 19, 1997. All of said applications are herein incorporated by reference.

In the Claims:

Claims 1-23 have been canceled.

New claims 24-103 have been added.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	
Duan *et al.*	Art Unit: *To be assigned*
Appl. No. *To be assigned* (Divisional of Appl. No. 09/362,871; Filed: July 29, 1999)	Examiner: *To be assigned*
Filed: *Herewith*	Atty. Docket: 1488.0880003/EKS/PSC/TAC
For: **Antibodies Directed to ELL2, a New Member of an ELL Family of RNA Polymerase II Elongation Factors (As amended herein)**	

Second Preliminary Amendment

Commissioner for Patents
Washington, D.C. 20231

Sir:

It is respectfully requested that the following amendments to the specification be entered in advance of substantive examination. This Amendment is provided in the following format:

(A) A clean version of each replacement paragraph/section/claim along with clear instructions for entry;

(B) Starting on a separate page, appropriate remarks and arguments. 37 C.F.R. § 1.115; and

(C) Starting on a separate page, a marked-up version entitled: "Version with markings to show changes made."

It is not believed that extensions of time or fees for net addition of claims are required beyond those that may otherwise be provided for in documents accompanying this paper. However, if additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned under 37 C.F.R. § 1.136(a), and

any fees required therefor (including fees for net addition of claims) are hereby authorized to be charged to our Deposit Account No. 19-0036.

Amendments

In the Specification:

Please replace the paragraph beginning at page 3, line 2, with the following paragraph:

FIG. 1A-1C shows the nucleotide and deduced amino acid sequence of human ELL2 (SEQ ID NOS:1 and 2, respectively).

Please replace the paragraph beginning at page 3, line 4, with the following paragraph:

FIG. 2 shows a comparison of the deduced amino acid sequences of human ELL2 (SEQ ID NO:2) and ELL (SEQ ID NO:7). Similar amino acids (A,S,T,P; D,E,N,Q; H,R,K; I,L,M,V; F,Y,W) and identical amino acids are boxed.

Please replace the paragraph beginning at page 3, line 8, with the following paragraph:

FIG. 3 shows the localization of the ELL2 elongation activation domain and a summary of ELL2 mutants and their activities in transcription. Wild type ELL2 is diagramed at the bottom of the panel. Conserved regions 1, 2 and 3 (R1, R2, and R3) are indicated by the shaded boxes. The alignment of SEQ ID NO:2 with the C-terminal ZO-1 binding domain of occludin (SEQ ID NO:8) was generated with the BESTFIT program of the Genetics Computer Group package,

using the symbol comparison table of Gribskov and Burgess (Gribskov, M. & Burgess, R.R., *Nucleic. Acids. Res. 14*:6745-6763 (1986)).

Please replace the paragraph beginning at page 9, line 13, with the following paragraph:

A deposit containing a human ELL2 cDNA has been deposited with the American Type Culture Collection, 10801 University Blvd., Manassas, VA 20110-2209, USA, on January 31, 1997, and assigned ATCC Deposit No. 97863. The deposited material is an expression vector referred to as pET-ELL2. This vector was constructed, as described in Example 1, by the insertion of an ELL2 cDNA sequence into the *Sal*I and *Bam*HI sites of M13mpET (Tan, S. *et al., BioTechniques 16*:824-828 (1994)) followed by oligonucleotide-directed mutagenesis (Kunkel, T.A., *Proc. Natl. Acad. Sci. U.S.A. 82*:488-492 (1985)). While the ATCC deposit is believed to contain the ELL2 cDNA sequence shown in SEQ ID NO:1, the nucleotide sequence of the polynucleotide contained in the deposited material, as well as the amino acid sequence of the polypeptide encoded thereby, are controlling in the event of any conflict with any description of sequences herein.

Please replace the paragraph beginning at page 10, line 4, with the following paragraph:

The ELL2 polypeptides of the present invention include the polypeptide of SEQ ID NO:2, as well as polypeptides and fragments which have activity which have at least 90% identity to the polypeptide of SEQ ID NO:2 or the relevant portion and more preferably at least 95%, 96%, 97% or 98% identity to the polypeptide of SEQ ID NO:2 and still more preferably at least 99% identity to the polypeptide of SEQ ID NO:2.

Please replace the paragraph beginning at page 25, line 5, with the following new paragraph:

The nucleotide sequences of the present invention are also valuable for chromosome identification. The sequence is specifically targeted to and can hybridize with a particular location on an individual human chromosome. For example, ELL2 sequences have been found by fluorescent *in situ* hybridization to bind to human chromosomes at 1 q21 and 5 q15. The inventors have further found that the hybridization signal from 1 q21 is significantly stronger than that at 5 q15.

Please replace the pending abstract with the abstract attached herewith.

Remarks

The amendments to page 3, line 3, and page 25, line 10, correct obvious typographical errors.

The specification has been amended to conform the formal drawings submitted herewith and to correct a discrepancy between the originally filed Figure 2 and the description of this figure in the specification. In particular, the legend to Figure 2 has been amended to reflect the fact that similar and identical amino acid residues between ELL and ELL2 protein are enclosed within boxes instead of either being set on a shaded or black background.

Further, the specification indicates that similar amino acids are shown in black letters on a grey background. However, this is not the case in the originally filed drawings. Amino acid residues which are similar between ELL and ELL2 are represented in the original drawings by white letters on a grey background.

The amendment to page 3, lines 5-7, is necessary to correct the discrepancies discussed above. This amendment adds no new matter.

The amendment to page 3, line 11, is necessary to insert a sequence identifier into the specification. This amendment adds no new matter.

In addition, the specification of the captioned application has been amended to introduce subject matter from the parent application, U.S. Appl. No. 60/038,447, which has been incorporated by reference into the captioned application. In particular, page 10, lines 6-7, have been amended to indicate that the invention is directed to polypeptides having 90% identity to the polypeptides disclosed in the captioned application. These amendments introduce no new matter and are supported by U.S. Appl. No. 60/038,447, *inter alia*, at page 9, lines 10-15.

The abstract has been amended to more clearly reflect the subject matter of the claimed invention.

The specification has also been amended to include the current address of the American Type Culture Collection (ATCC). This amendment adds no new matter.

It is respectfully believed that this application is now in condition for substantive examination. Early notice to this effect is respectfully requested.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

Reg # 42,613

for Eric K. Steffe
Attorney for Applicants
Registration No. 36,688

Date: December 28, 2001

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Suite 600
Washington, D.C. 20005-3934
(202) 371-2600

Version with markings to show changes made

In the Specification:

The paragraph beginning at page 3, line 2:

FIG. 1A-1C shows the nucleotide and deduced amino acid sequence of human ELL2 (SEQ ID NOS:1 and 2, [repectively]respectively).

The paragraph beginning at page 3, line 4:

FIG. 2 shows a comparison of the deduced amino acid sequences of human ELL2 (SEQ ID NO:2) and ELL (SEQ ID NO:7). [Identical amino acids are shown in white letters on a black background; similar]Similar amino acids (A,S,T,P; D,E,N,Q; H,R,K; I,L,M,V; F,Y,W) [are shown in black letters on a grey background]and identical amino acids are boxed.

The paragraph beginning at page 3, line 8:

FIG. 3 shows the localization of the ELL2 elongation activation domain and a summary of ELL2 mutants and their activities in transcription. Wild type ELL2 is diagramed at the bottom of the panel. Conserved regions 1, 2 and 3 (R1, R2, and R3) are indicated by the shaded boxes. The alignment of [region 3]SEQ ID NO:2 with the C-terminal ZO-1 binding domain of occludin (SEQ ID NO:8) was generated with the BESTFIT program of the Genetics Computer Group package, using the symbol comparison table of Gribskov and Burgess (Gribskov, M. & Burgess, R.R., *Nucleic. Acids. Res. 14*:6745-6763 (1986)).

The paragraph beginning at page 9, line 13:

A deposit containing a human ELL2 cDNA has been deposited with the American Type Culture Collection, [12301 Park Lawn Drive, Rockville, Maryland 20852, USA]10801 University Blvd., Manassas, VA 20110-2209, USA, on January 31, 1997, and assigned ATCC Deposit No. 97863. The deposited material is an expression vector referred to as pET-ELL2. This vector was constructed, as described in Example 1, by the insertion of an ELL2 cDNA sequence into the *Sal*I and *Bam*HI sites of M13mpET (Tan, S. *et al., BioTechniques 16*:824-828 (1994)) followed by oligonucleotide-directed mutagenesis (Kunkel, T.A., *Proc. Natl. Acad. Sci. U.S.A. 82*:488-492 (1985)). While the ATCC deposit is believed to contain the ELL2 cDNA sequence shown in SEQ ID NO:1, the nucleotide sequence of the polynucleotide contained in the deposited material, as well as the amino acid sequence of the polypeptide encoded thereby, are controlling in the event of any conflict with any description of sequences herein.

The paragraph beginning at page 10, line 4:

The ELL2 polypeptides of the present invention include the polypeptide of SEQ ID NO:2, as well as polypeptides and fragments which have activity which have at least [95%]90% identity to the polypeptide of SEQ ID NO:2 or the relevant portion and more preferably at least 95%, 96%, 97% or 98% identity to the polypeptide of SEQ ID NO:2 and still more preferably at least 99% identity to the polypeptide of SEQ ID NO:2.

The paragraph beginning at page 25, line 5:

The nucleotide sequences of the present invention are also valuable for chromosome identification. The sequence is specifically targeted to and can hybridize with a particular location on an individual human chromosome. For example, ELL2 sequences have been found by fluorescent *in*

situ hybridization to bind to human chromosomes at 1 q21 and 5 q15. The inventors have further found that the [hybrization]hybridization signal from 1 q21 is significantly stronger than that at 5 q15.

The abstract has been amended as follows:

[ELL2, a New Member of an ELL Family of RNA Polymerase II Elongation Factors]

Abstract of the Disclosure

ELL2 polypeptides and polynucleotides and methods for producing such polypeptides by recombinant techniques are disclosed. Also disclosed are antibodies and antibody fragments which specifically bind ELL2. Also disclosed are methods for utilizing ELL2 polypeptides and polynucleotides in the design of protocols for the treatment of neoplastic disorders, among others and diagnostic assays for such conditions.

Abstract of the Disclosure

ELL2 polypeptides and polynucleotides and methods for producing such polypeptides by recombinant techniques are disclosed. Also disclosed are antibodies and antibody fragments which specifically bind ELL2. Also disclosed are methods for utilizing ELL2 polypeptides and polynucleotides in the design of protocols for the treatment of neoplastic disorders, among others and diagnostic assays for such conditions.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	
Duan *et al.*	Art Unit: *To be assigned*
Appl. No. *To be assigned* (Divisional of U.S. Appl. No. 09/362,871; Filed: July 29, 1999)	Examiner: *To be assigned*
Filed: *Herewith*	Atty. Docket: 1488.0880003/EKS/PSC/TAC
For: **Antibodies Directed to ELL2, a New Member of an ELL Family of RNA Polymerase II Elongation Factors** (As amended herein)	

Letter to PTO Draftsman: Submission of Formal Drawings

Commissioner for Patents
Washington, D.C. 20231

Sir:

Submitted herewith are 7 sheets of Formal Drawings with Figures 1A, 1B, 1C, 2, 3, 4 and 5, corresponding to the informal drawings submitted with the above-captioned application. Identification of the drawings is provided in accordance with 37 C.F.R. § 1.84(c). Acknowledgment of the receipt, approval, and entry of these Formal Drawings into this application is respectfully requested.

It is not believed that an extension of time is required, other than any already provided herewith. However, if an extension of time is needed to prevent abandonment of the application, then such extension of time is hereby petitioned. The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036. A duplicate copy of this Letter is enclosed.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

Reg #42,613

Eric K. Steffe
Attorney for Applicants
Registration No. 36,688

Date: December 28, 2001

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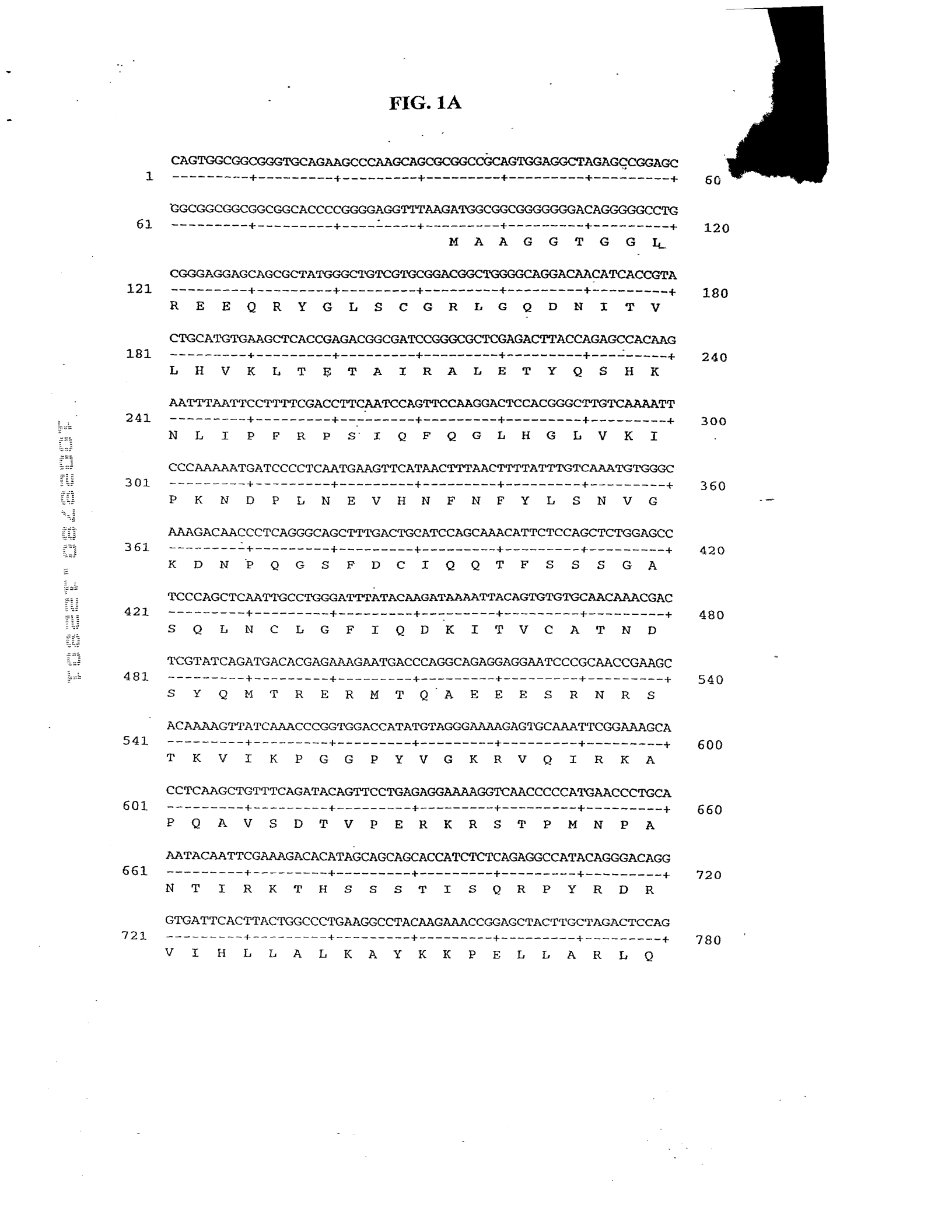
FIG. 1A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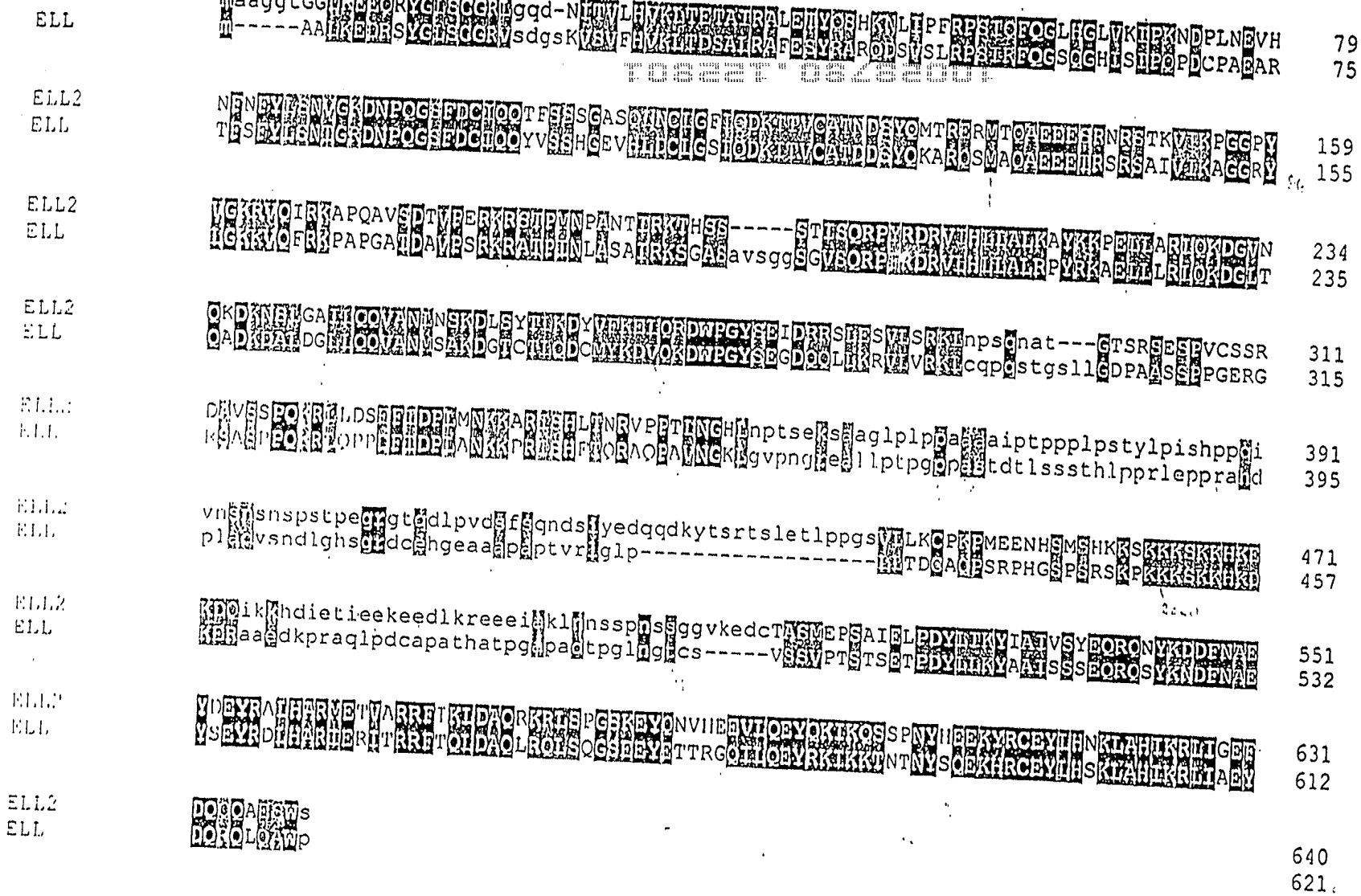
1 60
GGCGGCGGCGGCGGCACCCCGGGGAGGTTTAAGATGGCGGCGGGGGGGACAGGGGGCCTG
61 120
M A A G G T G G L
CGGGAGGAGCAGCGCTATGGGCTGTCGTGCGGACGGCTGGGGCAGGACAACATCACCGTA
121 180
R E E Q R Y G L S C G R L G Q D N I T V
CTGCATGTGAAGCTCACCGAGACGGCGATCCGGGCGCTCGAGACTTACCAGAGCCACAAG
181 240
L H V K L T E T A I R A L E T Y Q S H K
AATTTAATTCCTTTTCGACCTTCAATCCAGTTCCAAGGACTCCACGGGCTTGTCAAAATT
241 300
N L I P F R P S I Q F Q G L H G L V K I
CCCAAAAATGATCCCCTCAATGAAGTTCATAACTTTAACTTTTATTTGTCAAATGTGGGC
301 360
P K N D P L N E V H N F N F Y L S N V G
AAAGACAACCCTCAGGGCAGCTTTGACTGCATCCAGCAAACATTCTCCAGCTCTGGAGCC
361 420
K D N P Q G S F D C I Q Q T F S S S G A
TCCCAGCTCAATTGCCTGGGATTTATACAAGATAAAATTACAGTGTGTGCAACAAACGAC
421 480
S Q L N C L G F I Q D K I T V C A T N D
TCGTATCAGATGACACGAGAAAGAATGACCCAGGCAGAGGAGGAATCCCGCAACCGAAGC
481 540
S Y Q M T R E R M T Q A E E E S R N R S
ACAAAAGTTATCAAACCCGGTGGACCATATGTAGGGAAAAGAGTGCAAATTCGGAAAGCA
541 600
T K V I K P G G P Y V G K R V Q I R K A
CCTCAAGCTGTTTCAGATACAGTTCCTGAGAGGAAAAGGTCAACCCCCATGAACCCTGCA
601 660
P Q A V S D T V P E R K R S T P M N P A
AATACAATTCGAAAGACACATAGCAGCAGCACCATCTCTCAGAGGCCATACAGGGACAGG
661 720
N T I R K T H S S S T I S Q R P Y R D R
GTGATTCACTTACTGGCCCTGAAGGCCTACAAGAAACCGGAGCTACTTGCTAGACTCCAG
721 780
V I H L L A L K A Y K K P E L L A R L Q

```
                AAAGATGGTGTCAATCAAAAAGACAAGAACTCCCTGGGAGCAATTCTGCAACAGGTAGCC
781             ---------+---------+---------+---------+---------+---------+  840
                K  D  G  V  N  Q  K  D  K  N  S  L  G  A  I  L  Q  Q  V  A

                AATCTGAATTCTAAGGACCTCTCATATACCTTAAAGGATTATGTTTTTAAAGAGCTTCAA
841             ---------+---------+---------+---------+---------+---------+  900
                N  L  N  S  K  D  L  S  Y  T  L  K  D  Y  V  F  K  E  L  Q

                AGAGACTGGCCTGGATACAGTGAAATAGACAGACGGTCATTGGAGTCAGTGCTCTCTAGA
901             ---------+---------+---------+---------+---------+---------+  960
                R  D  W  P  G  Y  S  E  I  D  R  R  S  L  E  S  V  L  S  R

                AAACTAAATCCGTCTCAGAATGCTACAGGCACCAGCCGTTCAGAATCTCCTGTATGTTCT
961             ---------+---------+---------+---------+---------+---------+ 1020
                K  L  N  P  S  Q  N  A  T  G  T  S  R  S  E  S  P  V  C  S

                AGTAGAGATGCTGTATCTTCTCCTCAGAAACGGCTTTTGGATTCAGAGTTTATTGATCCT
1021            ---------+---------+---------+---------+---------+---------+ 1080
                S  R  D  A  V  S  S  P  Q  K  R  L  L  D  S  E  F  I  D  P

                TTAATGAATAAAAAAGCCCGAATATCTCACCTGACGAACAGAGTACCACCAACACTAAAT
1081            ---------+---------+---------+---------+---------+---------+ 1140
                L  M  N  K  K  A  R  I  S  H  L  T  N  R  V  P  P  T  L  N

                GGTCATTTGAATCCCACCAGTGAAAAATCGGCTGCAGGCCTCCCACTGCCCCCTGCGGCT
1141            ---------+---------+---------+---------+---------+---------+ 1200
                G  H  L  N  P  T  S  E  K  S  A  A  G  L  P  L  P  P  A  A

                GCTGCCATCCCCACCCCTCCACCGCTGCCTTCAACCTATCTGCCCATCTCACATCCTCCT
1201            ---------+---------+---------+---------+---------+---------+ 1260
                A  A  I  P  T  P  P  P  L  P  S  T  Y  L  P  I  S  H  P  P

                CAGATTGTAAATTCTAACTCCAACTCCCCTAGCACTCCAGAAGGCCGGGGGACTCAAGAC
1261            ---------+---------+---------+---------+---------+---------+ 1320
                Q  I  V  N  S  N  S  N  S  P  S  T  P  E  G  R  G  T  Q  D

                CTACCTGTTGACAGTTTTAGTCAAAACGATAGTATCTATGAGGACCAGCAAGACAAATAT
1321            ---------+---------+---------+---------+---------+---------+ 1380
                L  P  V  D  S  F  S  Q  N  D  S  I  Y  E  D  Q  Q  D  K  Y

                ACCTCTAGGACTTCTCTGGAAACCTTACCCCCTGGTTCCGTTCTACTAAAGTGTCCAAAG
1381            ---------+---------+---------+---------+---------+---------+ 1440
                T  S  R  T  S  L  E  T  L  P  P  G  S  V  L  L  K  C  P  K

                CCTATGGAAGAAAACCATTCAATGTCTCACAAAAAGTCCAAAAAGAAGTCTAAAAAACAT
1441            ---------+---------+---------+---------+---------+---------+ 1500
                P  M  E  E  N  H  S  M  S  H  K  K  S  K  K  K  S  K  K  H

                AAGGAAAAGGACCAAATAAAAAAGCACGACATTGAGACTATTGAGGAAAAGGAGGAAGAT
1501            ---------+---------+---------+---------+---------+---------+ 1560
                K  E  K  D  Q  I  K  K  H  D  I  E  T  I  E  E  K  E  E  D

                CTTAAGAGAGAAGAGGAAATTGCCAAGCTAAATAACTCCAGTCCAAATTCCAGTGGAGGA
1561            ---------+---------+---------+---------+---------+---------+ 1620
```

FIG. 1B

```
      L  K  R  E  E  E  I  A  K  L  N  N  S  S  P  N  S  S  G  G

      GTTAAAGAGGATTGCACTGCCTCCATGGAACCTTCAGCAATTGAACTCCCAGATTATTTG
1621  ---------+---------+---------+---------+---------+---------+  1680
      V  K  E  D  C  T  A  S  M  E  P  S  A  I  E  L  P  D  Y  L

      ATAAAATATATCGCTATCGTCTCCTATGAGCAACGCCAGAATTATAAGGATGACTTCAAT
1681  ---------+---------+---------+---------+---------+---------+  1740
      I  K  Y  I  A  I  V  S  Y  E  Q  R  Q  N  Y  K  D  D  F  N

      GCAGAGTATGATGAGTACAGAGCTTTGCATGCCAGGATGGAGACTGTAGCTAGAAGATTT
1741  ---------+---------+---------+---------+---------+---------+  1800
      A  E  Y  D  E  Y  R  A  L  H  A  R  M  E  T  V  A  R  R  F

      ATCAAACTAGATGCACAAAGAAAGCGCCTTTCTCCAGGCTCAAAAGAGTATCAGAATGTT
1801  ---------+---------+---------+---------+---------+---------+  1860
      I  K  L  D  A  Q  R  K  R  L  S  P  G  S  K  E  Y  Q  N  V

      CATGAAGAAGTCTTACAAGAATATCAGAAGATAAAGCAGTCTAGTCCCAATTACCATGAA
1861  ---------+---------+---------+---------+---------+---------+  1920
      H  E  E  V  L  Q  E  Y  Q  K  I  K  Q  S  S  P  N  Y  H  E

      GAAAAATACAGATGTGAATATCTTCATAACAAGCTGGCTCACATCAAAAGGCTAATAGGT
1921  ---------+---------+---------+---------+---------+---------+  1980
      E  K  Y  R  C  E  Y  L  H  N  K  L  A  H  I  K  R  L  I  G

      GAATTTGACCAACAGCAAGCAGAGTCATGGTCCTAGAACTCTGCTTGGACCAGAAGATGT
1981  ---------+---------+---------+---------+---------+---------+  2040
      E  F  D  Q  Q  Q  A  E  S  W  S  *

      GAATAAACTTAAGCTTATTTATTTAAAATTCCAAATGAGTTGCTCTAGATTCTAAAAAGG
2041  ---------+---------+---------+---------+---------+---------+  2100

      TGAAACTTTGGCTGTTGAAAGTTTCAGTATTAGTAAACT
2101  ---------+---------+---------+---------  2139
```

FIG. 1C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ELL2
ELL
ELL2
ELL
ELL2
ELL
ELL2
ELL
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ELL
ELL2
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ELL
79
75
159
155
234
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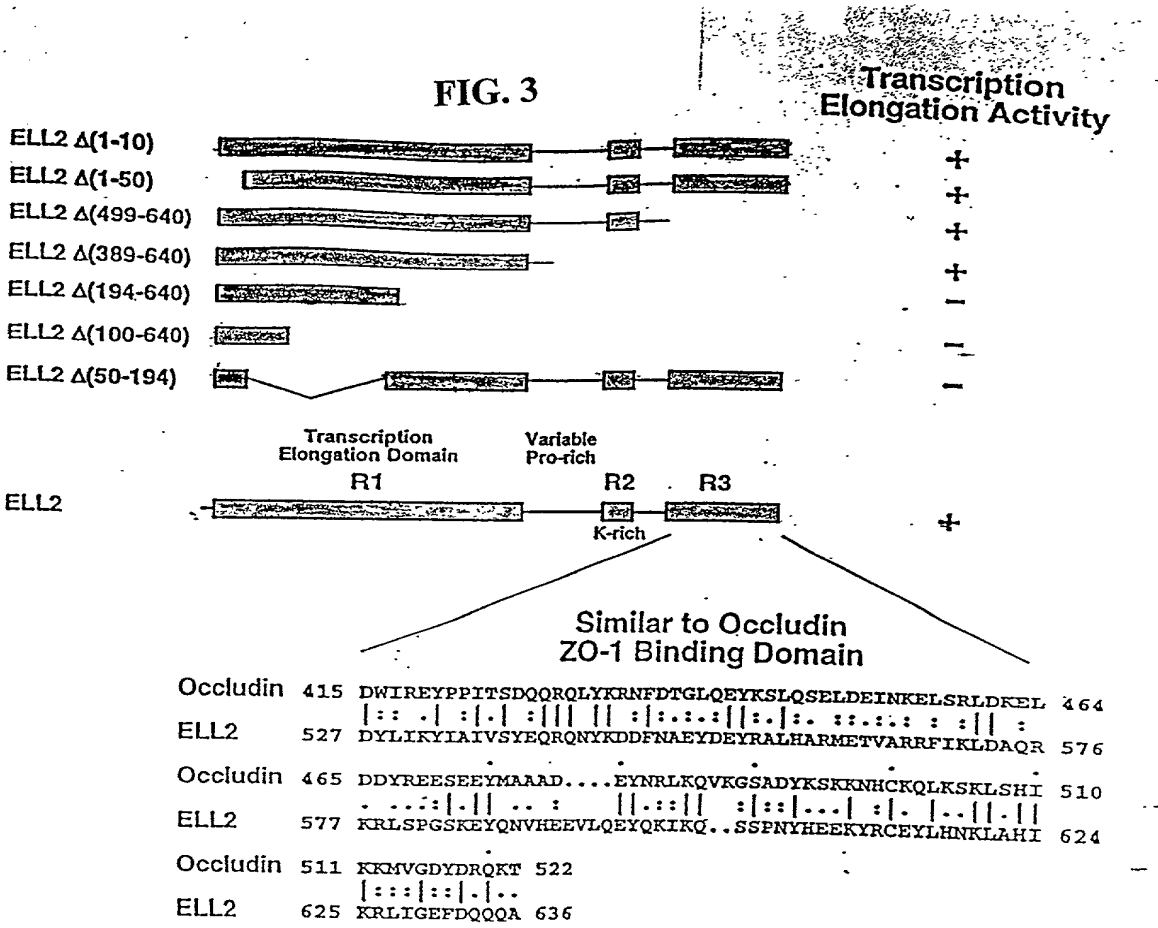
311
315
391
395
471
457
551
532
631
612
640
621

FIG. 2

FIG. 3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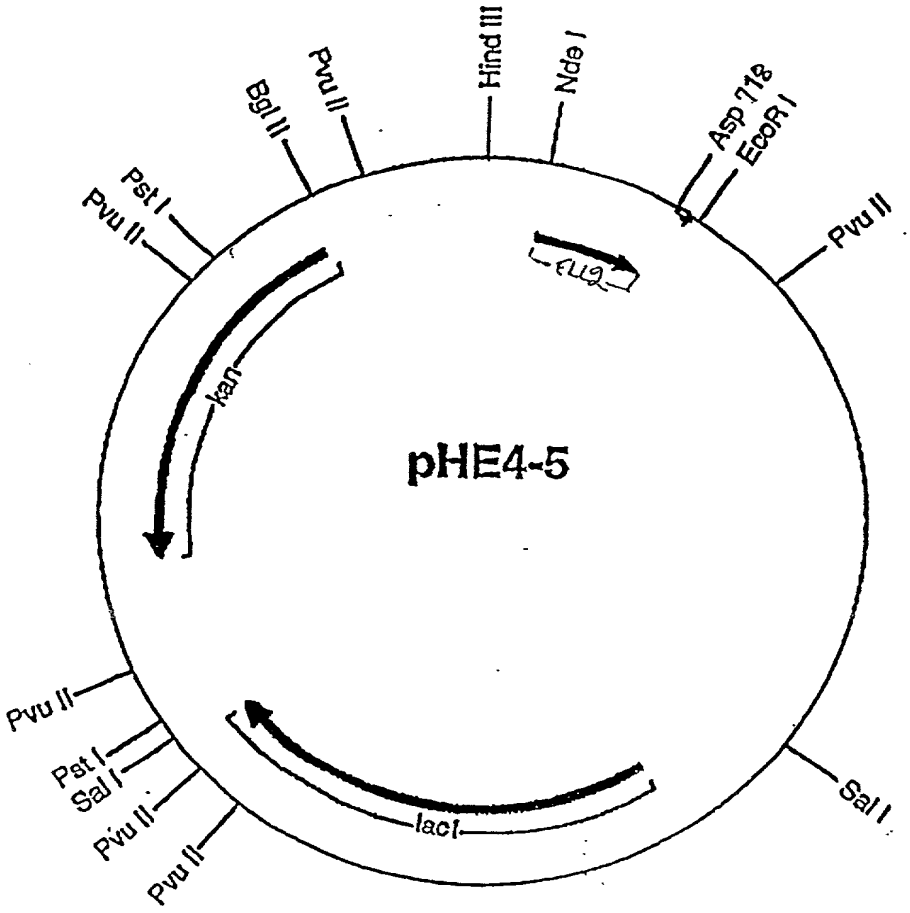
ELL2 Δ(1-50)
ELL2 Δ(499-640)
ELL2 Δ(389-640)
ELL2 Δ(194-640)
ELL2 Δ(100-640)
ELL2 Δ(50-194)
+
+
+
+
−
−
−
Transcription Elongation Domain
Variable Pro-rich
R1
R2
R3
ELL2
K-rich
+
Similar to Occludin ZO-1 Binding Domain
Occludin 415 DWIREYPPITSDQQRQLYKRNFDTGLQEYKSLQSELDEINKELSRLDKEL 464
ELL2 527 DYLIKYIAIVSYEQRQNYKDDFNAEYDEYRALHARMETVARRFIKLDAQR 576
Occludin 465 DDYREESEEYMAAAD....EYNRLKQVKGSADYKSKKNHCKQLKSKLSHI 510
ELL2 577 KRLSPGSKEYQNVHEEVLQEYQKIKQ..SSPNYHEEKYRCEYLHNKLAHI 624
Occludin 511 KKMVGDYDRQKT 522
ELL2 625 KRLIGEFDQQQA 636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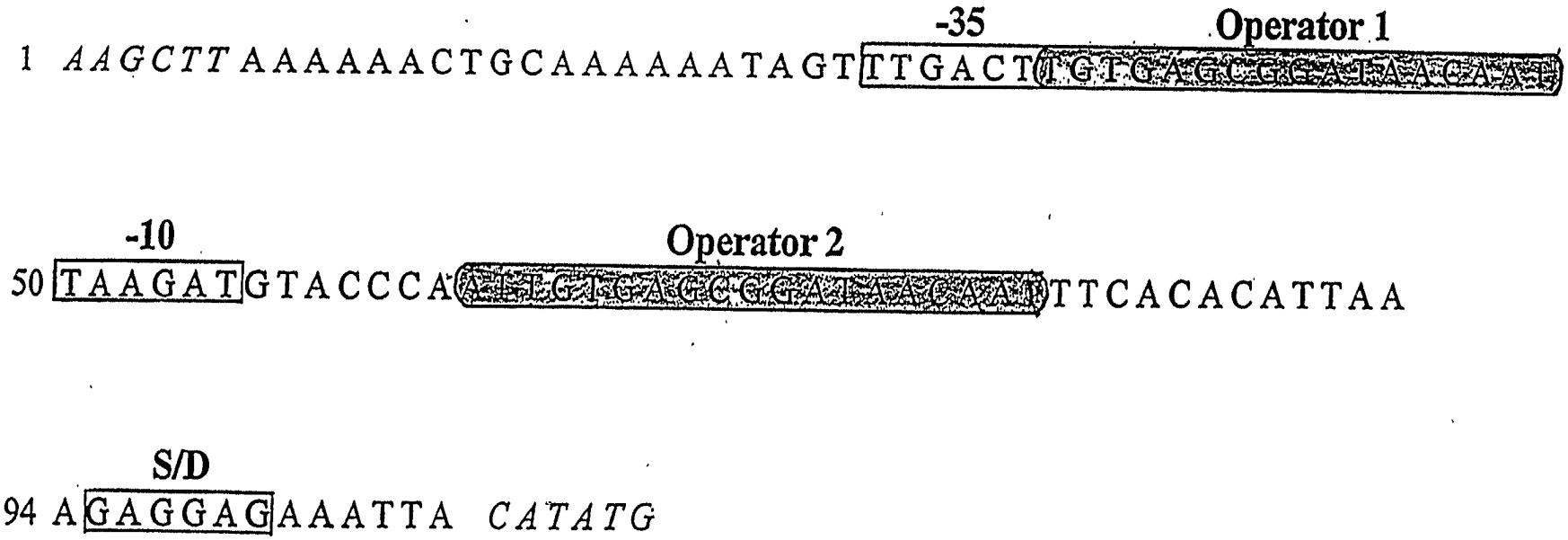
Nde I
Asp 718
EcoR I
Pvu II
Sal I
Pvu II
Pvu II
Pst I
Sal I
Pvu II
Pvu II
Pst I
Pvu II
Bgl II
Pvu II
kan
lacI

FIG. 4

FIG. 5


-35
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-10
Operator 2
50 TAAGAT GTACCCA
TTCACACATTAA
S/D
94 A GAGGAG AAATTA CATATG